Claim Amendment

Please amend the claims as shown below.

1. (currently amended) An organic photosensitive optoelectronic device comprising:

an anode;

an active region comprising a cyclometallated organometallic material; and

a cathode,

wherein the device produces a photogenerated current when illuminated with light, and wherein the active region comprises a donor layer and acceptor layer, and wherein

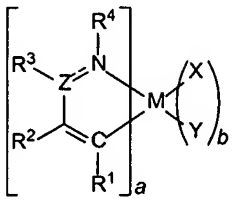
(a) the donor layer and/or acceptor layer consists of the cyclometallated organometallic material; or

(b) the donor layer and/or acceptor layer is doped, with the cyclometallated organometallic material as the host.

2. (original) The organic photosensitive optoelectronic device of claim 1, wherein the cyclometallated organometallic material comprises an Ir or Pt atom.

3. (original) The organic photosensitive optoelectronic device of claim 1, wherein the device further comprises a blocking layer.

4. (currently amended) The organic photosensitive optoelectronic device of claim 1, wherein the cyclometallated organometallic material has the formula I



(I)

wherein

M is a transition metal having ~~a molecular~~ an atomic weight greater than 40;

Z is N or C,

the dotted line represents an optional double bond,

R^1, R^2, R^3 and R^4 are independently selected from H, alkyl, or aryl, and additionally or alternatively, one or more of R^1 and R^2, R^2 and R^3, and R^3 and R^4 together from independently a 5 or 6-member cyclic group, wherein said cyclic group is cycloalkyl, cycloheteroalkyl, aryl or heteroaryl; and wherein said cyclic group is optionally substituted by one or more substituents Q;

each substituent Q is independently selected from the group consisting of alkyl, alkenyl, alkynyl, aralkyl, CN, CF_3, NR_2, NO_2, OR, halo, and aryl, and additionally, or alternatively, two Q groups on adjacent ring atoms form a fused 5- or 6-membered aromatic group;

each R is independently selected from H, alkyl, aralkyl, aryl and heteroaryl;

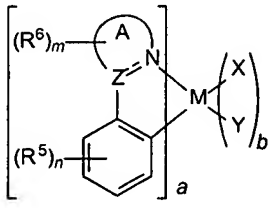
(X and Y), separately or in combination, are an ancillary ligand;

a is 1 to 3; and

b is 0 to 2;

with the proviso that the sum of *a* and *b* is 2 or 3.

5. (currently amended) The organic photosensitive optoelectronic device of claim 1, wherein the cyclometallated organometallic material has the formula



wherein

M is a transition metal having ~~a molecular~~ an atomic weight greater than 40;

ring A is an aromatic heterocyclic ring or a fused aromatic heterocyclic ring with at least one nitrogen atom that coordinates to the metal M;

Z is selected from carbon or nitrogen;

each R^5 is independently selected from the group consisting of alkyl, alkenyl, alkynyl, aralkyl, CN, CF_3, NR_2, NO_2, OR, halo, and aryl, and additionally, or alternatively, two R^5 groups on adjacent ring atoms form a fused 5- or 6-membered aromatic group;

each R^6 is independently selected from the group consisting of alkyl, alkenyl, alkynyl, aralkyl, CN, CF_3, NR_2, NO_2, OR, halo, and aryl, and additionally, or alternatively, two R^6 groups on adjacent ring atoms form a fused 5- or 6-membered aromatic group;

each R is independently selected from H, alkyl, aralkyl, aryl and heteroaryl;

(X and Y), separately or in combination, are an ancillary ligand;

n is 0 to 4;

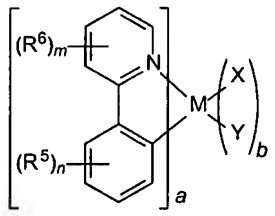
m is 0 to 4;

a is 1 to 3; and

b is 0 to 2;

with the proviso that the sum of *a* and *b* is 2 or 3.

6. (currently amended) The organic photosensitive optoelectronic device of claim 5, wherein the cyclometallated organometallic material has the formula



wherein

M is a transition metal having ~~a molecular~~ an atomic weight greater than 40;

~~ring A is an aromatic heterocyclic ring or a fused aromatic heterocyclic ring with at least one nitrogen atom that coordinates to the metal M;~~

each R^5 is independently selected from the group consisting of alkyl, alkenyl, alkynyl, aralkyl, CN, CF_3, NR_2, NO_2, OR, halo, and aryl, and additionally, or alternatively, two R^5 groups on adjacent ring atoms form a fused 5- or 6-membered aromatic group;

each R^6 is independently selected from the group consisting of alkyl, alkenyl, alkynyl, aralkyl, CN, CF_3, NR_2, NO_2, OR, halo, and aryl, and additionally, or alternatively, two R^6 groups on adjacent ring atoms form a fused 5- or 6-membered aromatic group;

each R is independently selected from H, alkyl, aralkyl, aryl and heteroaryl;

(X and Y), separately or in combination, are an ancillary ligand;

n is 0 to 4;

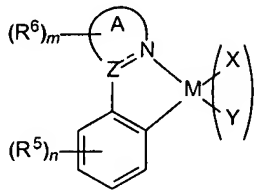
m is 0 to 4;

a is 1 to 3; and

b is 0 to 2;

with the proviso that the sum of *a* and *b* is 2 or 3.

7. (currently amended) The organic photosensitive optoelectronic device of claim 5, wherein the cyclometallated organometallic material has the formula IV



IV

wherein

M is a transition metal having ~~a molecular~~ an atomic weight greater than 40;

ring A is an aromatic heterocyclic ring or a fused aromatic heterocyclic ring with at least one nitrogen atom that coordinates to the metal M;

Z is selected from carbon or nitrogen;

each R^5 is independently selected from the group consisting of alkyl, alkenyl, alkynyl, aralkyl, CN, CF_3, NR_2, NO_2, OR, halo, and aryl, and additionally, or alternatively, two R^5 groups on adjacent ring atoms form a fused 5- or 6-membered aromatic group;

each R^6 is independently selected from the group consisting of alkyl, alkenyl, alkynyl, aralkyl, CN, CF_3, NR_2, NO_2, OR, halo, and aryl, and additionally, or alternatively, two R^6 groups on adjacent ring atoms form a fused 5- or 6-membered aromatic group;

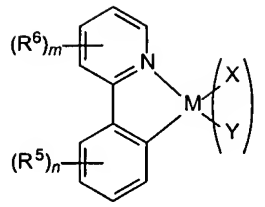
each R is independently selected from H, alkyl, aralkyl, aryl and heteroaryl;

(X and Y), separately or in combination, are an ancillary ligand;

n is 0 to 4; and

m is 0 to 4.

8. (currently amended) The organic photosensitive optoelectronic device of claim 7, wherein the cyclometallated organometallic material has the formula V



V

wherein

M is a transition metal having ~~a molecular~~ an atomic weight greater than 40;

each R^5 is independently selected from the group consisting of alkyl, alkenyl, alkynyl, aralkyl, CN, CF_3, NR_2, NO_2, OR, halo, and aryl, and additionally, or alternatively, two R^5 groups on adjacent ring atoms form a fused 5- or 6-membered aromatic group;

each R^6 is independently selected from the group consisting of alkyl, alkenyl, alkynyl, aralkyl, CN, CF_3, NR_2, NO_2, OR, halo, and aryl, and additionally, or alternatively, two R^6 groups on adjacent ring atoms form a fused 5- or 6-membered aromatic group;

each R is independently selected from H, alkyl, aralkyl, aryl and heteroaryl;

(X and Y), separately or in combination, are an ancillary ligand;

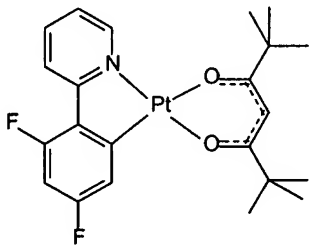
n is 0 to 4; and

m is 0 to 4.

9. (original) The organic photosensitive optoelectronic device of claim 7, wherein M is Pt.

10. (original) The organic photosensitive optoelectronic device of claim 7, wherein the cyclometallated organometallic material forms π-stacked chains.

11. (original) The organic photosensitive optoelectronic device of claim 9, wherein the cyclometallated organometallic material has the formula



12. (original) The organic photosensitive optoelectronic device of claim 1, wherein the cyclometallated organometallic material absorbs light in the red or near IR portion of the spectrum.

13. (original) The organic photosensitive optoelectronic device of claim 1, wherein the device is a photovoltaic device.

14. (original) The organic photosensitive optoelectronic device of claim 1, wherein the device is a photodetector.

15. (original) The organic photosensitive optoelectronic device of claim 1, wherein the device is a photoconductor.

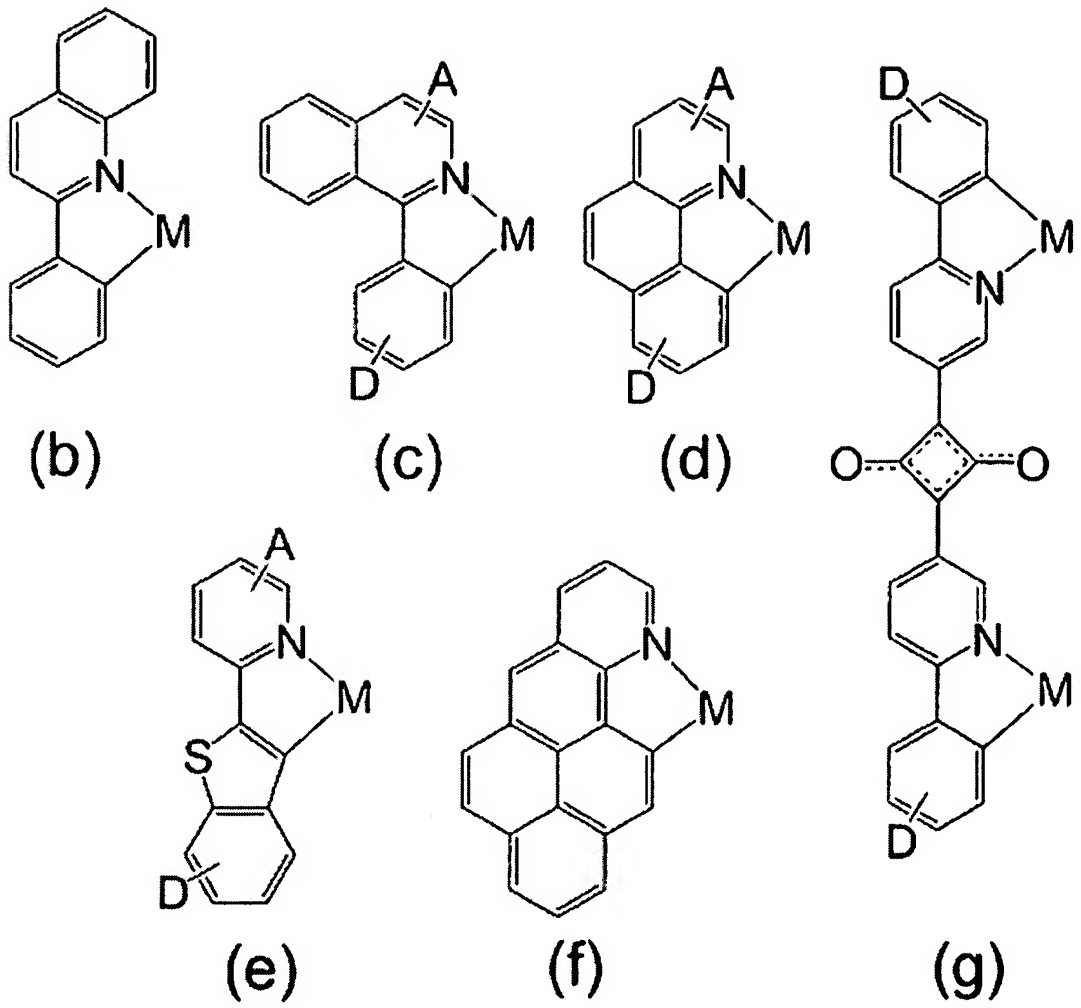
16. (original) The organic photosensitive optoelectronic device of claim 1, wherein the device comprises multiple subcells in series.

17. (new) The organic photosensitive optoelectronic device of claim 1, wherein the donor layer and/or acceptor layer is doped.

18. (new) The organic photosensitive optoelectronic device of claim 4, wherein M a transition metal selected from the group consisting of Pt, Ir, Pd, Rh, Re, Os, Tl, Pb, Bi, In, Sn, Sb, Te, Au and Ag.

19. (new) The organic photosensitive optoelectronic device of claim 5, wherein M a transition metal selected from the group consisting of Pt, Ir, Pd, Rh, Re, Os, Tl, Pb, Bi, In, Sn, Sb, Te, Au and Ag.

20. (new) The organic photosensitive optoelectronic device of claim 4, wherein the cyclometallated organometallic material comprises a partial structure selected from the group consisting of structures (b), (c), (d), (e), (f) and (g) shown below:



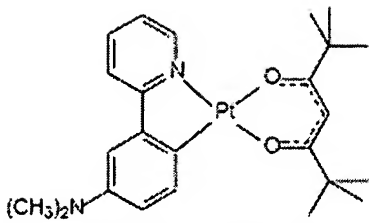
wherein

M is a transition metal having an atomic weight greater than 40; and

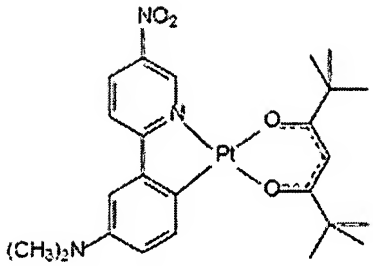
A and D are optional substituents being electron-acceptor or electron-donor groups.

21. (new) The organic photosensitive optoelectronic device of claim 20, wherein M is Ir or Pt.

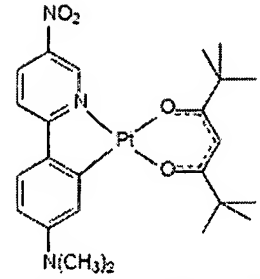
22. (new) The organic photosensitive optoelectronic device of claim 5, wherein the cyclometallated organometallic material is selected from the group consisting of the following compounds:



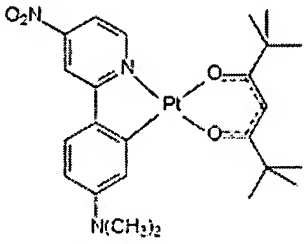
(5'-N(CH$_3$)$_2$ph-pyr)Pt(dpm)



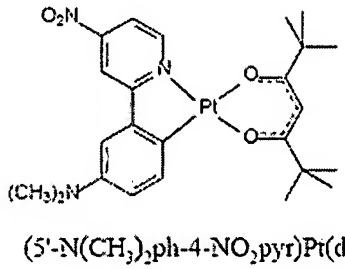
(5'-N(CH$_3$)$_2$ph-5-NO$_2$pyr)Pt(dpm)



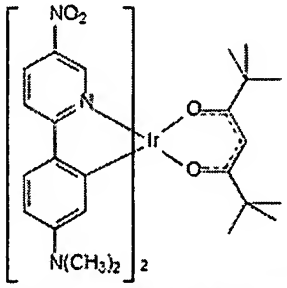
(4'-N(CH$_3$)$_2$ph-5-NO$_2$pyr)Pt(dpm)



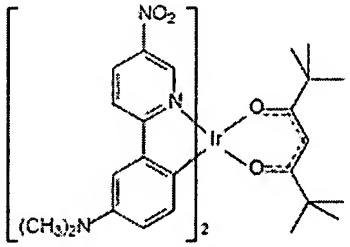
(4'-N(CH$_3$)$_2$ph-4-NO$_2$pyr)Pt(dpm)



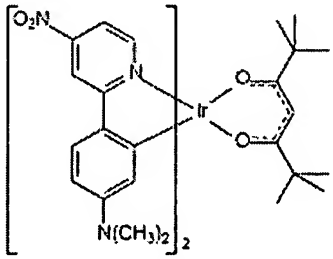
(5'-N(CH$_3$)$_2$ph-4-NO$_2$pyr)Pt(dpm)



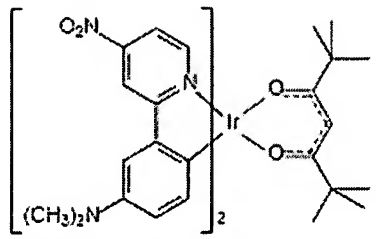
(4'-N(CH$_3$)$_2$ph-5-NO$_2$pyr)$_2$Ir(dpm)



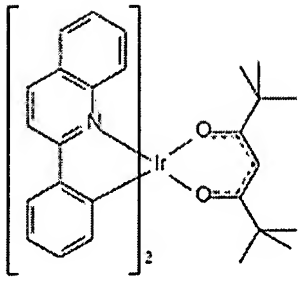
(5'-N(CH$_3$)$_2$ph-5-NO$_2$pyr)$_2$Ir(dpm)



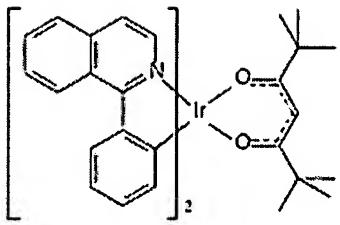
(4'-N(CH$_3$)$_2$ph-4-NO$_2$pyr)$_2$Ir(dpm)



(5'-N(CH$_3$)$_2$ph-4-NO$_2$pyr)$_2$Ir(dpm)



(pq)$_2$Ir(dpm)



(*i*pq)$_2$Ir(dpm)